

ABSTRACT

A semiconductor device having an alternating conductivity type layer improves the tradeoff between the on-resistance and the breakdown voltage and facilitates increasing the current capacity by reducing the on-resistance while maintaining a high breakdown voltage.

The semiconductor device includes a semiconductive substrate region, through which a current flows in the ON-state of the device and that is depleted in the OFF-state. The semiconductive substrate region includes a plurality of vertical alignments of n-type buried regions 32 and a plurality of vertical alignments of p-type buried regions. The vertically aligned n-type buried regions and the vertically aligned p-type buried regions are alternately arranged horizontally. The n-type buried regions and p-type buried regions are formed by diffusing respective impurities into highly resistive n-type layers 32a laminated one by one epitaxially.